

NAVAL SEA SYSTEMS COMMAND

NSWC

***Naval Surface Warfare Center
Port Hueneme Division
A Tradition of Excellence!***

DAM NECK

PHD NSWC

Dam Neck

MISSION

Provide Test and Evaluation, In-Service Engineering, and Integrated Logistics Support for Surface Combat Systems, System Interface, Weapons Systems and Subsystems, Unique Equipments, and Related Expendable Ordnance of the Navy Surface Fleet. Execute Other Responsibilities as Assigned by the Commander, Naval Surface Warfare Center.

VISION

Enable ships and sailors to fight and win through excellence in what we do.



DAM NECK HISTORY

- BECAUSE OF ITS STRATEGIC LOCATION FLEET COMPUTER PROGRAMMING CENTER, ATLANTIC WAS ESTABLISHED MARCH 1, 1963 AS A TENANT COMMAND OF FLEET COMBAT TRAINING CENTER, ATLANTIC
- THIRTY YEARS OF COMPLEX EMBEDDED SYSTEMS SOFTWARE ENGINEERING, DEVELOPMENT, AND LIFE CYCLE SUPPORT FOR REAL-TIME TACTICAL SYSTEMS
- PROXIMITY WITH NAS OCEANA, NOB/NAS CINCLANT, SACLANT AND JTASC/USACOM AFFORDS GLOBAL CONNECTIVITY
- CREATES MISSION-CRITICAL SOFTWARE FROM OPERATIONAL REQUIREMENTS DEFINITION TO TEST AND DELIVERY

NAVAL SEA SYSTEMS COMMAND



DAM NECK

DAM NECK HISTORY

continued

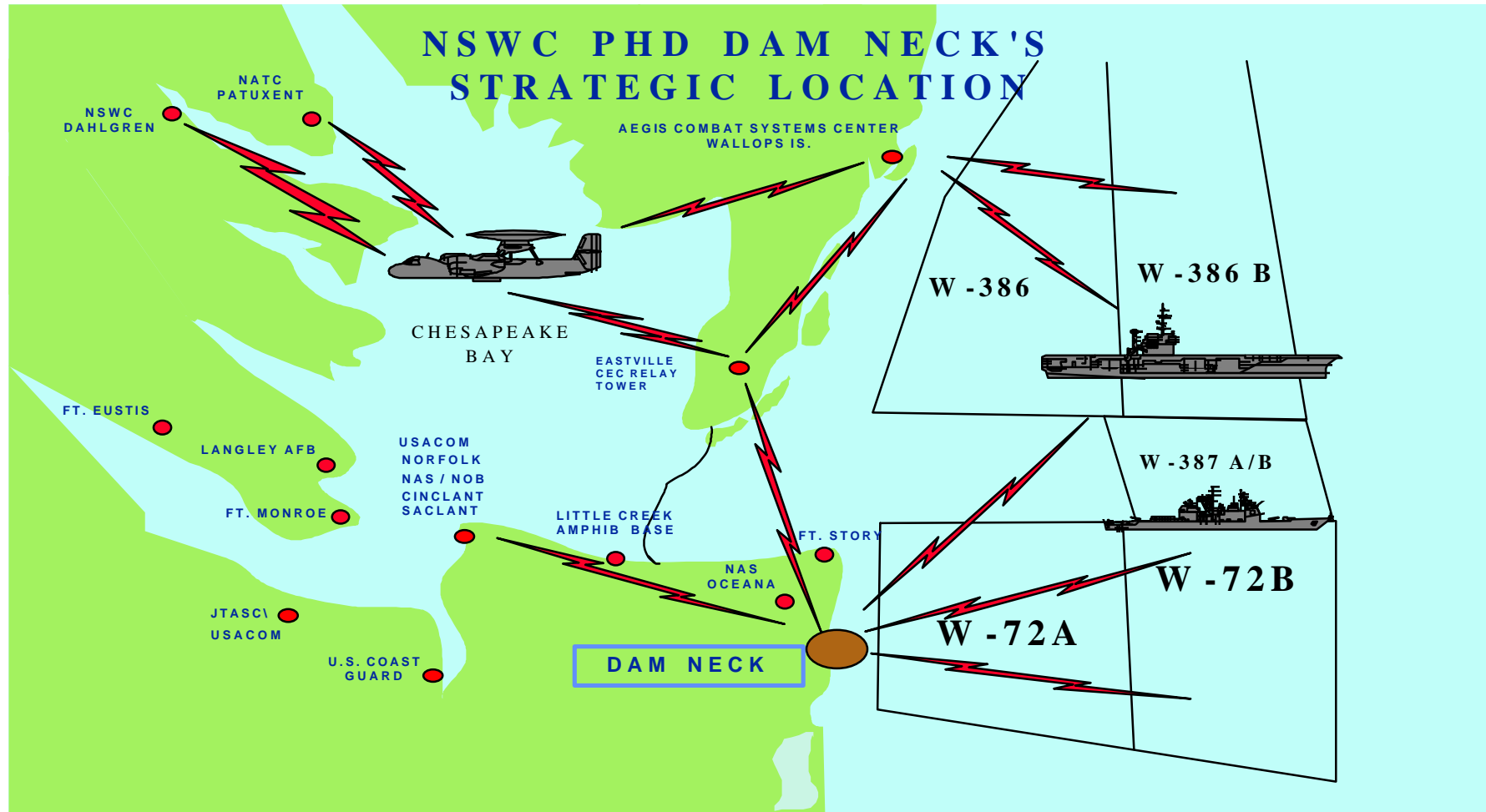
- DEVELOPED COMMAND STATION COLLISION AVOIDANCE AND TRACKING SYSTEM (CSCATS)
- SOFTWARE DEVELOPMENT AGENCY FOR BATTLE FORCE TACTICAL TRAINING (BFTT)
- DESIGNS AND BUILDS EMULATORS FOR ALL COMBAT SYSTEM PERIPHERALS
- CARNEGIE MELLON UNIVERSITY SOFTWARE ENGINEERING INSTITUTE (SEI) PARTNER
- DEVELOPED FIRST PROTOTYPE INTEGRATED BRIDGE USING VME TECHNOLOGY
- SOFTWARE DEVELOPMENT AGENT FOR SMART SHIP PROJECT

DAM NECK HISTORY

continued

- **DEVELOPS AND MAINTAINS OVER 1.5 MILLION LINES OF SIMULATION CODE**
- **MAINTAINS OVER 5.3 MILLION LINES OF DEPLOYED MISSION CRITICAL CODE**
- **A LEADER IN THE APPLICATION OF CODE REUSE IN A MAJOR DEFENSE SYSTEM ACQUISITION**
- **TODAY THE DAM NECK DIRECTORATE IS ACTIVELY ACCOMPLISHING THE NAVAL SURFACE WARFARE CENTER'S PORT HUENEME DIVISION MISSION. THIS DIRECTORATE CONDUCTS THE PLANNING, DESIGN, DEVELOPMENT, PRODUCTION, TESTING AND DELIVERY OF COMBAT DIRECTION SYSTEMS OPERATIONAL PROGRAMS**

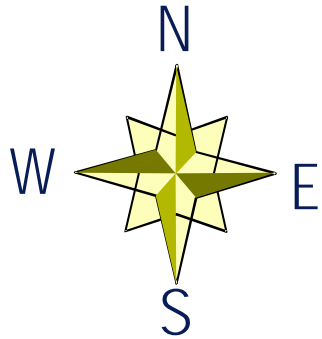
“The Tidewater Advantage”



- Dam Neck's strategic location places it in the center of major multi-service commands. With its existing complex of mockups, computers, live data links, radars, sensors and weapons systems the facility provides an ideal environment for multi-service test activities.

What is “The Tidewater Advantage”?

- Our facility offers everything you need for successful projects



- The best the world has to offer wrapped in one package



NAVAL SEA SYSTEMS COMMAND

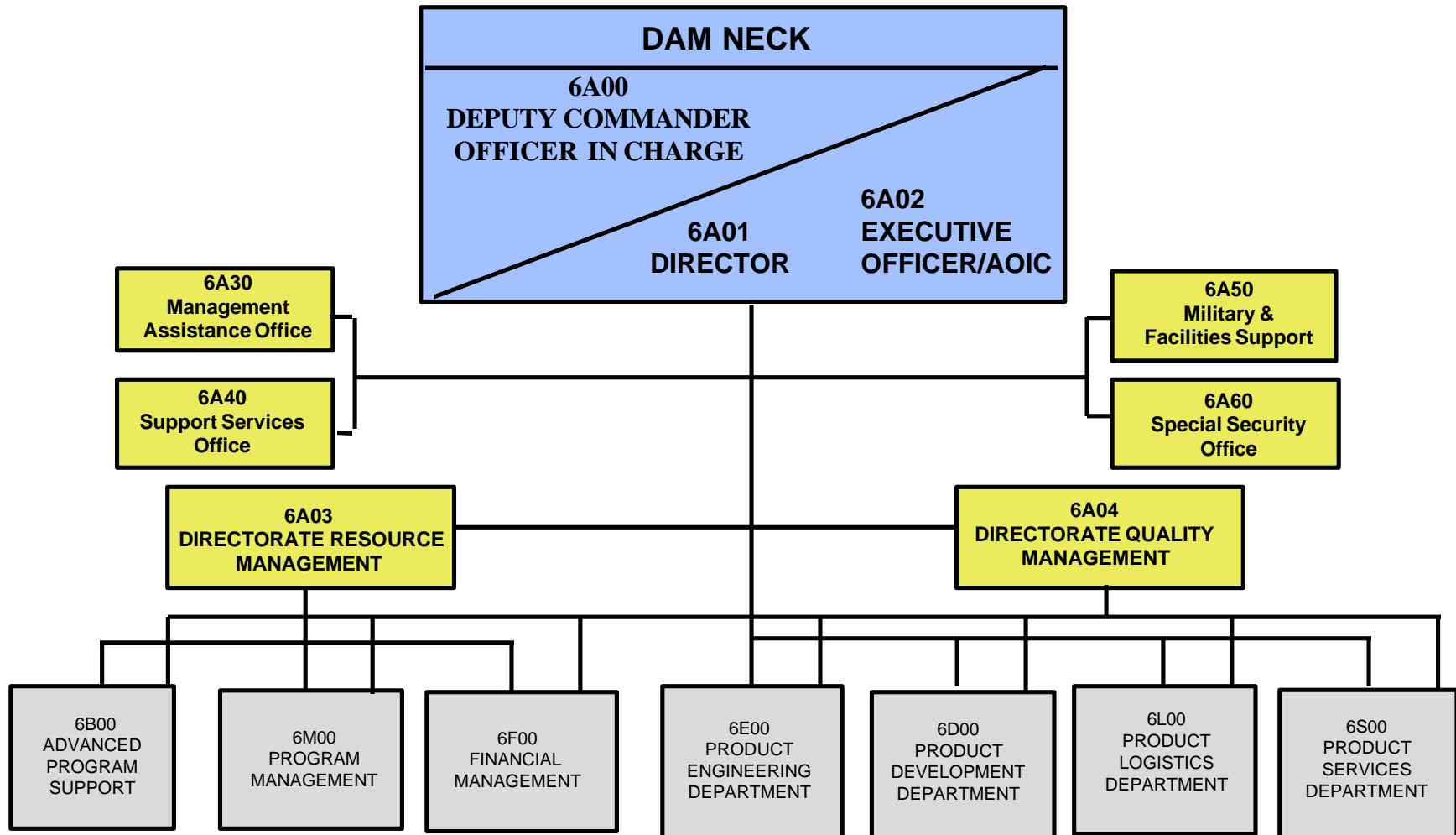
NSWC
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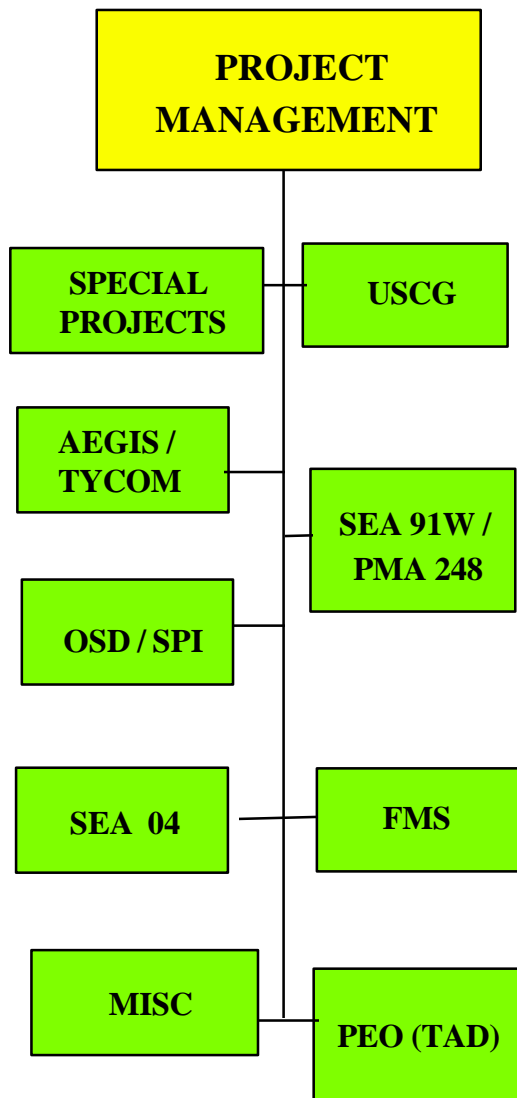
PORT HUENEME DIVISION DAM NECK

- ORGANIZATION
- FUNCTIONAL EXPERTISE
- SOFTWARE
- HARDWARE
- FACILITIES
- FUTURE OF SOFTWARE ARCHITECTURE

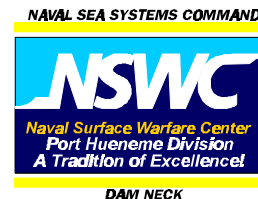
ORGANIZATION



PORT HUENEME DIVISION DAM NECK

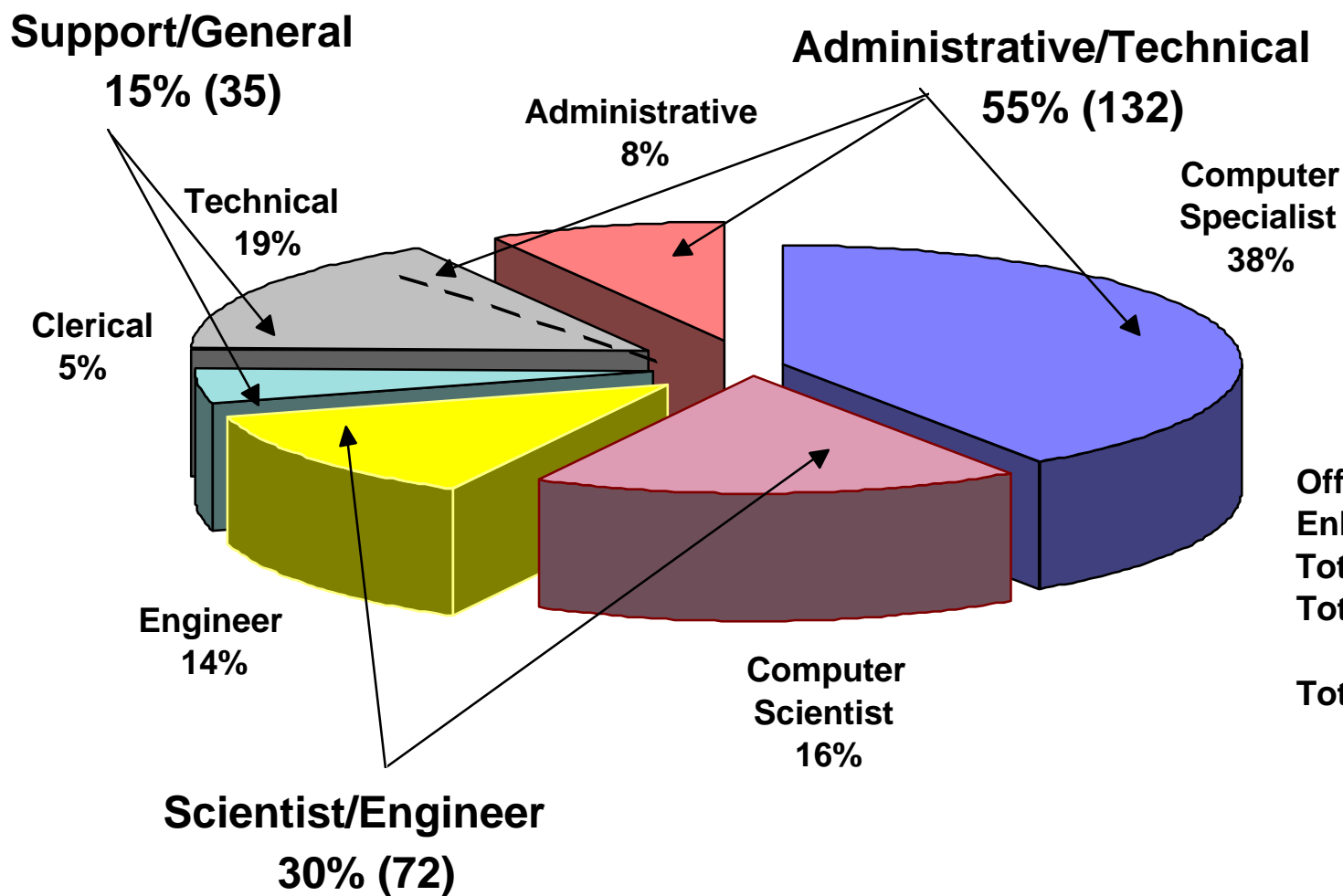


Customer service and Technical Support have always been our syrenghth.
Our technical people and engineers work closely with customers to help evaluate needs and provide the most cost effective solution.



PORT HUENEME DIVISION DAM NECK

PERSONNEL DATA

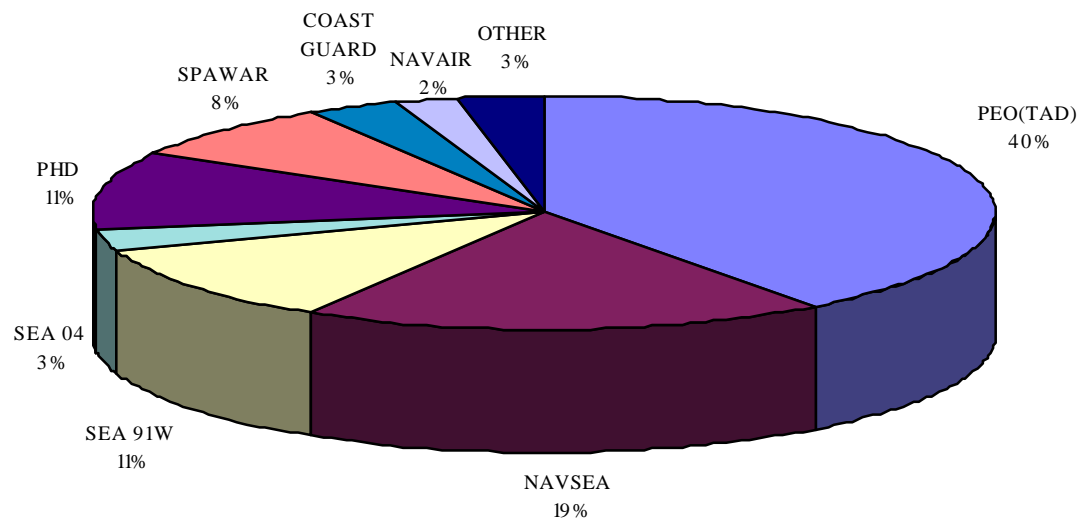


1 July 1997

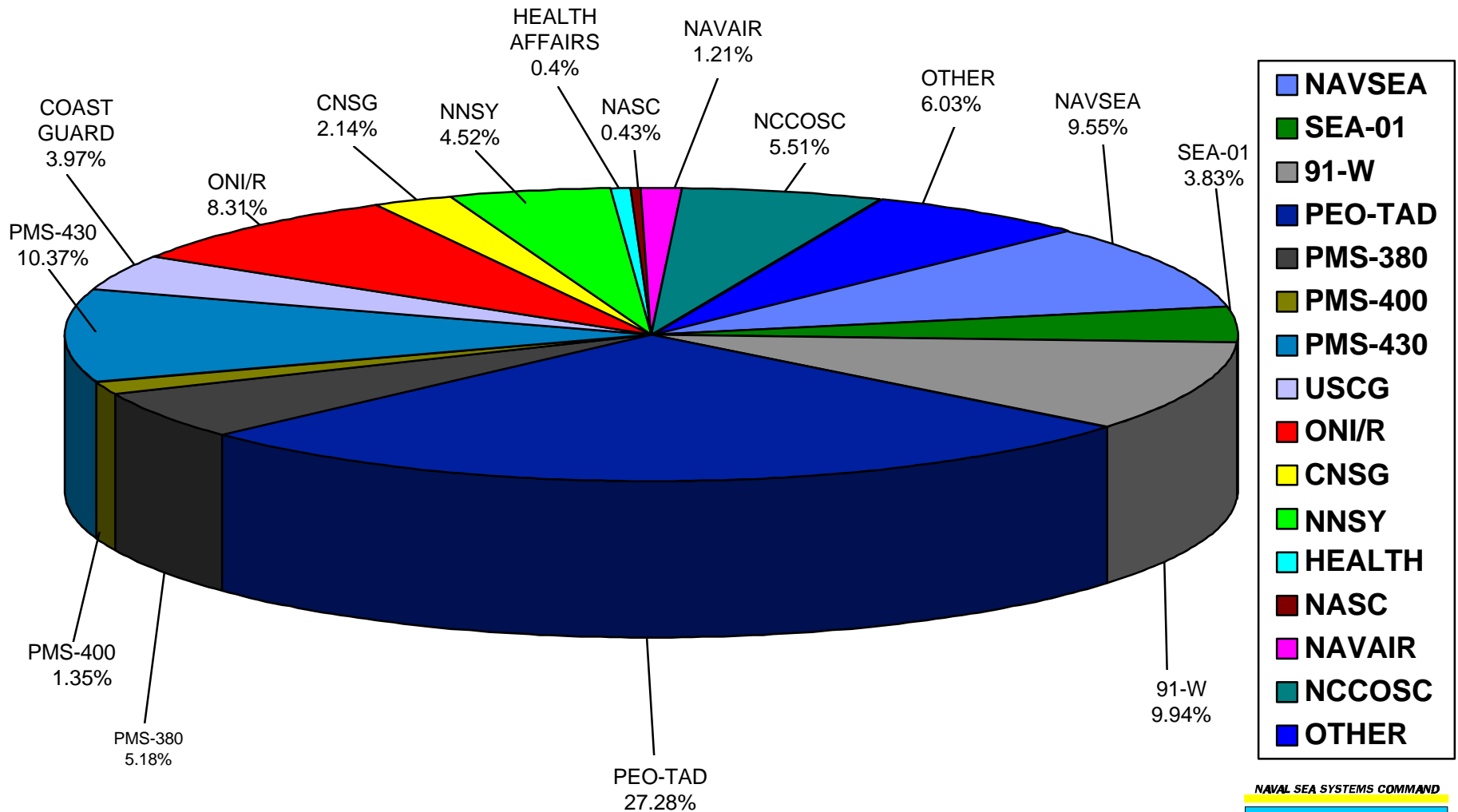
Officers (Auth)	15
Enlisted (Auth)	29
Total Military	44
Total Civilians	239

Total On-Board 283

FY 96 CUSTOMER BASE



FY 97 CUSTOMER BASE



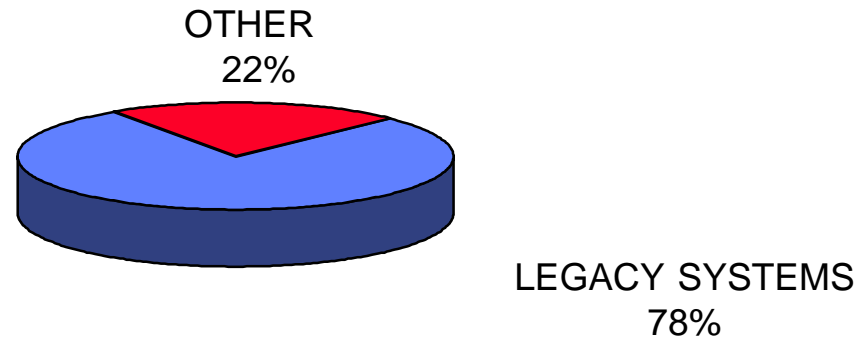
“S” FINANCE 97 FUNDLOG

TREND

LEGACY SYSTEMS:

- BLOCK 0
- FFG 7 CLASS
- DD 963 CLASS

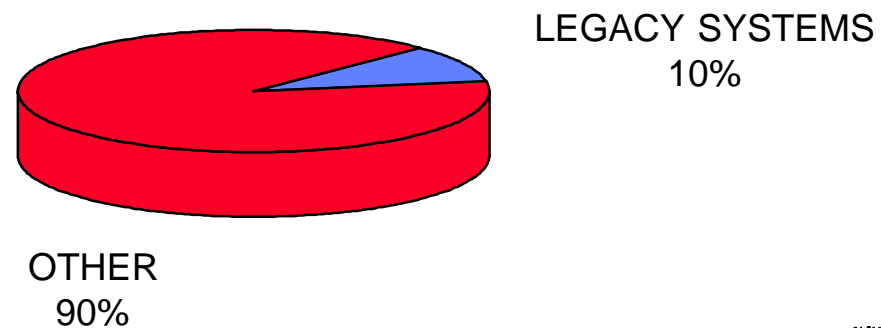
FY 91 BUDGET



FY 97 BUDGET

OTHER:

- | | |
|-----------------|-------------------|
| -BFTT | -AN/SPQ-12 |
| -CEC | -MATERIAL MGMT |
| -COAST GUARD | -SPECIAL PROJECTS |
| -FMS | -CNSG |
| -HEALTH AFFAIRS | -ADS |
| -ACDS | -CSOSS |
| -TECR | -NNSY |
| -AN/SYQ-20 | |



PORT HUENEME DIVISION DAM NECK

A LONG HISTORY OF FMS SUPPORT:

- ITALY
- GERMANY
- TAIWAN

CURRENTLY ACTIVE:

- AUSTRALIA
- SPAIN
- THAILAND
- EGYPT
- BAHRAIN
- JAPAN
- TURKEY



FMS

- SOFTWARE
- IV&V
- CODE
- TEST
- HARDWARE
- ILS

NAVAL SEA SYSTEMS COMMAND



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PORT HUENEME DIVISION DAM NECK



Capability Maturity Model (CMM)

MULTI-FUNCTIONAL LAND BASED TEST SITE (LBTS)

- **ESTABLISHED AT NSWC PHD DAM NECK BY PEO(TAD)C**
- **PURPOSE:**
 - CEC DEVELOPMENTAL TESTING, INTEGRATION & FLEET INTRODUCTION
 - ACDS BLOCK-1 TEST, INTEGRATION & OPERATOR TRAINING
 - AEGIS CDS/ACDS BLOCK-1 LINK 11/16 TEST AND INTEGRATION
- **FACILITY IS A FULLY INTEGRATED ACDS BLOCK-1/CEC TEST CONTROL CENTER CENTERED AROUND THE LATEST CDS TECHNOLOGY**

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COOPERATIVE ENGAGEMENT CAPABILITY



- **Weapons Link Capability for Battle Group AAW Composite Tracking and Warfare**
- **FY 97/98 Initial Operational Test and Evaluation (IOT & E)**
- **NSWC, PHD ROLE**
 - CEC Test Control Center (DAM NECK)
 - * Controls CEC Operations in VACAPES Area
 - * Supports Inport Testing
 - CEC Integration Site for non-AEGIS Systems (DAM NECK)
 - Land Based Training Site (DAM NECK)
 - ILS Support Site (DAM NECK)
 - CEC ISEE
 - Ship Installation Engineering



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BATTLE FORCE TACTICAL TRAINING (BFTT)

- ◆ Provides an effective inport combat system team training capability from the level of the Battle Group Commanders down to the “deck plates” across all warfare areas
 - Electronically moves real ships and crews to a common synthetic theater of war (STOW)
 - Train on the ship’s equipment, among geographically dispersed units via the Defense Simulation Internet (DSI)
 - Combines real ships with constructive and virtual entities to provide a realistic, interactive environment that supports team training from the BG commander to the console operators on the individual ships.
 - Maximizes use of Government Owned Software (GOS) and Commercial off-the shelf (COTS) hardware and software

BATTLE FORCE TACTICAL TRAINING (BFTT) continued

- ◆ NSWC PHD Dam Neck's role:
 - BFTT Software Design Agent
 - ☞ Manage, develop, integrate, and deliver BFTT software
 - BFTT Software System Engineer
 - ☞ Define system software and hardware architecture
 - ☞ Engineer BFTT integration with external systems
 - BFTT Software Support Agent
 - ☞ Manage and maintain BFTT software configuration
 - ☞ Provide technical support via help desk
(BFTT_SUPPORT@ecomail.damneck.navy.mil)
 - Integration and Test Site
 - ☞ BFTT Software Development Lab
 - ☞ BFTT Shore Site at FCTCLANT (DSI Connectivity)

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DAM NECK: OVER 30 YEARS ENGINEERING EXCELLENCE

- **Secretary of Defense 1995 Productivity Excellence Award - \$6.5 M saved**
- **“Mirrors best practices of industry” (GAO Report on Test and Evaluation 9/93)**
- **ADA Joint Program Office at DISA: “...places where reuse has shined like FCDSSA DAM Neck with their restructured NTDS program”. (CHIPS July 1995)**
- **“The NAVY’s RNTDS System...real key to success was the architecture [resulting in] reduction in schedule. That’s the kind of benefit...you get when you standardize architecture...” Mr.. Lloyd K. Moseman (Under Secretary of the Air Force for Communications, Computers and Logistics) to the Software Technology Conference**



NAVAL SEA SYSTEMS COMMAND



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SOFTWARE DEVELOPMENT & LCM

- **COMBAT SYSTEMS DEVELOPMENT & SUPPORT**

- CDS FOR CGN, DDG-993, DD-963 & FFG-7 CLASSES
- RADAR & DISPLAY DISTRIBUTION SYSTEM
 - COTS BASED
 - 300 SHIPS
- ACDS COMMAND STATION
 - COTS BASED
 - REAL TIME COLOR LSD OF TACTICAL SITUATION
 - 24 HOUR REPLAY
- ADVANCED SENSOR DISTRIBUTION SYSTEM
 - GOTS/COTS BASED



NAVAL SEA SYSTEMS COMMAND



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SOFTWARE DEVELOPMENT & LCM continued



- **MODELING & SIMULATION**
 - **BATTLE FORCE TACTICAL TRAINING (BFTT)**
 - **JOINT SIMULATION SYSTEM (JSIMS) MARITIME**
 - **LIGHT AIRBORNE MULTI-PURPOSE SYSTEM (LAMPS)**
 - **COMBAT SYSTEM SIMULATION (CSS)**
 - **INTEGRATED CONDITION ASSESSMENT SYSTEM (ICAS)**
 - **NAVY CLOSE QUARTERS COMBAT RANGE (NCQR)**

NAVAL SEA SYSTEMS COMMAND



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SOFTWARE PROCESS IMPROVEMENT (SPI)

- **SOFTWARE CAPABILITY MATURITY MODEL INITIATIVE - DOD - CARNEGIE MELLON UNIVERSITY/SOFTWARE ENGINEERING INSTITUTE (TRAINING) SINCE 1990. (DON'S REPRESENTATIVE)**
 - **INDIVIDUAL PROJECTS CURRENTLY AT CMM LEVEL 3**
 - **FULL FACILITY ASSESSMENT LEVEL 3 CERTIFICATION SCHEDULED JULY 97.**
- **NEW TECHNOLOGIES (LANS, WEB BASED DEVELOPMENT, COTS/GOTS/NDI, OPEN SYSTEM ARCHITECTURE, ADA, OBJECT ORIENTED DEVELOPMENT, DISTRIBUTED DATABASES)**

SOFTWARE PROCESS IMPROVEMENT (SPI) continued

CURRENT INITIATIVES

- **OSD'S TECHNICAL AGENT FOR SOFTWARE QUICKLOOK ASSESSMENTS (TOMAHAWK, COMANCHE, CEC, ETC)**
- **FOUNDER & CHAIR OF THE HAMPTON ROADS SPI NETWORK (HRSPIN)**
- **REVIEWER AND PARTICIPANT OF ISO 9000/SPICE INITIATIVES**
- **DON ONLY 5 CERTIFIED CBA/IPI LEAD ASSESSORS**
- **TWENTY-EIGHT TRAINED AND EXPERIENCED SOFTWARE CAPABILITY EVALUATION (SCE) ASSESSORS**

SOFTWARE PROCESS IMPROVEMENT (SPI) continued

CURRENT INITIATIVES

- **PERFORMED:**
 - **TWENTY SCE'S FOR DOD SOFTWARE ACQUISITIONS**
 - **EIGHTEEN SOFTWARE PROCESS ASSESSMENTS (SPA's)**
 - **SIX CMM BASED APPRAISAL FOR INTERNAL PROCESS
IMPROVEMENT(CBA/IPI)**
- **PROVIDING SPI CONSULTING AND TRAINING TO DOD ORGANIZATION**
- **DOD'S SOFTWARE ACQUISITION BEST PRACTICES INITIATIVE
PARTICIPANT**
- **CHAIR, FEDERATION WORKING GROUP FOR COMMON DISPLAY
KERNEL (CDK)**

PORT HUENEME DIVISION DAM NECK

- ORGANIZATION
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- **HARDWARE**
- FACILITIES
- FUTURE OF SOFTWARE ARCHITECTURE

CDS HARDWARE IN-SERVICE ENGINEERING (>800 NOMENCLATURES)

•ENGINEERING AGENT ASSIGNMENTS

- PROGRAM MANAGER (PM)
- ACQUISITION ENGINEERING AGENT (AEA)
- DESIGN AGENT (DA)
- SYSTEM INTEGRATION AGENT (SIA)
- IN-SERVICE ENGINEERING AGENT (ISEA)
- INTERIM SUPPORT AGENT (ISA)
- TEST DEVELOPMENT (TDM)

•AGENT RESPONSIBILITIES

• SYSTEM INTEGRATION

- AN/SYQ-20 CDS/ITAWDS
- AN/SPQ-12 RADDs
- LHA UPGRADE

• DISPLAY AND DATA DISTRIBUTION

- AN/SPA-25G
- AN/UYA-4 (V)
- AN/UYQ-21 (V)
- SWITCHBOARDS
- DATA CONVERTERS
- TACTICAL LANS

• COMPUTER/PERIPHERALS

- AN/UYK-43
- AN/UYK-7
- AN/UYH-3
- AN/UYH-16
- RD-358,358A
- OJ-172

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AEGIS TACTICAL COMPUTERS, PERIPHERALS, DISPLAYS

- AN/UYQ-21(V) COMPUTER DISPLAY SET
 - ACQUISITION SUPPORT FOR SCN SHIPS (DDG-73,74,75,76)
 - FIELD CHANGE UPGRADES
 - TECHNICAL MANUAL REVISION UPDATES (64 EA)
- AN/UYK-43A (V) COMPUTER
 - INTEGRATED FIELD CHANGE 2 (IFC-2) UPGRADE COMPLETE
- AN/UYK-7 (V) COMPUTER
 - NON DESTRUCTIVE READ ONLY (NDRO) MEMORY UPGRADE
 - VISIBRIDGE
- AN/UYA-4(V) DATA DISPLAY SYSTEM
- OJ-172/UYK INPUT/OUTPUT CONSOLE
 - KSR-35 TELETYPE REPLACEMENT WITH AN/UGC-143B
 - PAPER TAPE REMOVAL
 - LAMP REPLACEMENT
- INTEGRATED LOGISTICS SUPPORT
- PURSUING COMMERCIAL ARPA-34 RADAR NAVIGATION DISPLAY ISEA



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AUTOMATED SOFTWARE SYSTEMS ENGINEERING ENVIRONMENT

- OPEN SYSTEMS ARCHITECTURE/DOMAIN ENGINEERING
- UNIX ADA, C, & C++ DEVELOPMENT & MAINTENANCE ENVIRONMENTS
- CASE TOOLS (PCMS, TEAMWORK, INTERLEAF, McCABE, UIMX, RTM VXWORKS)
 - REQUIREMENTS GENERATION & ANALYSIS
 - AUTOMATED DESIGN, CODE and DOCUMENTATION
- REAL TIME EMBEDDED SYSTEM DEVELOPMENT
- NETWORKED SOFTWARE ENGINEERING LABORATORIES
- HIGH PERFORMANCE COMPUTING
- META COMPUTING NETWORK
- INTEGRATED SOFTWARE ENGINEERING ENVIRONMENT (ISEE) LAB



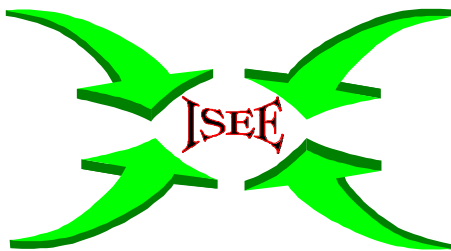
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INTEGRATED SYSTEM ENGINEERING ENVIRONMENT ISEE

- The Integrated System Engineering Environment (ISEE) is a set of software tools and hardware platforms, that interface and communicate with each other to automate systems development, LCM activities and project management functions.
- The ISEE provides a framework in which engineering, LCM, information and documentation management services are tightly integrated around a project repository. It uses Open Systems Architecture, COTS components and a WEB based HMI for maximum flexibility, reduced development costs and wide area access.
- The ISEE provides many benefits including higher quality products, enhanced metric collection, project visibility at all levels, reduced training requirements, more efficient use of resources and quicker customer response.
- NSWC PHD Dam Neck has established a lab facility to develop the ISEE in a stand alone environment to minimize impact to production efforts. The lab allows for new technology to be investigated and tested prior to incorporation into the production process for better technology change management.



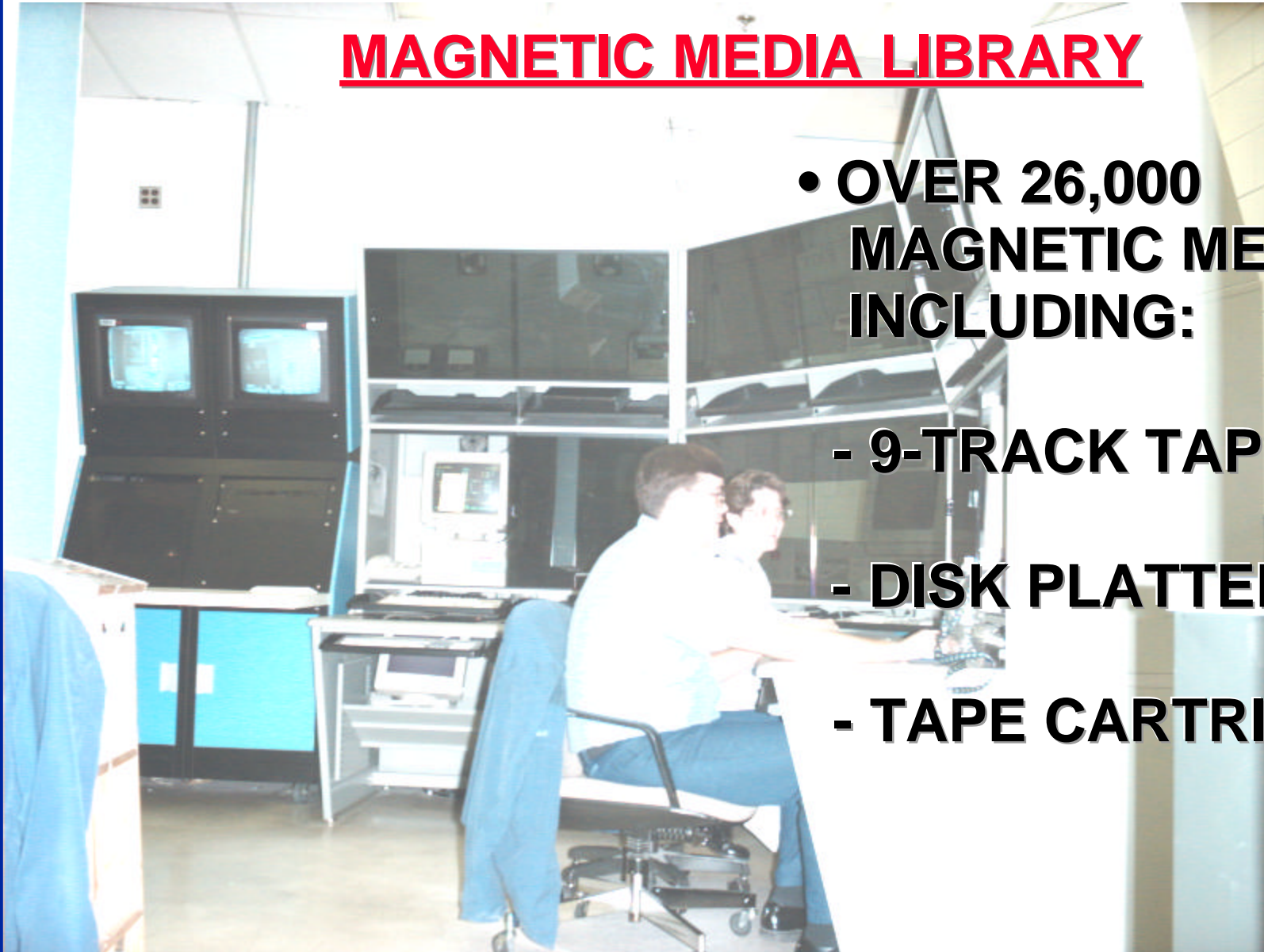
COMBAT DIRECTION SYSTEM HARDWARE FACILITIES

- 4-DEDICATED CDS SOFTWARE DEVELOPMENT/LCM LABS
- 10 SURFACE SHIPS CDS MOCKUPS (SHARED WITH FCTCLANT)
- CEC LAND BASED TEST SITE/LAB
- SECURE WIDE AREA NETWORK WITH TACTRAGRULANT, NMITC, FCTCLANT
- VME BASED DEVELOPMENT LABS FOR VME APPLICATIONS SOFTWARE AND VMEbus PROTOCOLS (VXIbus, etc)

PROGRAM GENERATION CENTER (continued)

MAGNETIC MEDIA LIBRARY

- **OVER 26,000
MAGNETIC MEDIA
INCLUDING:**
 - **9-TRACK TAPES**
 - **DISK PLATTERS**
 - **TAPE CARTRIDGES**



PROGRAM GENERATION CENTER (continued)

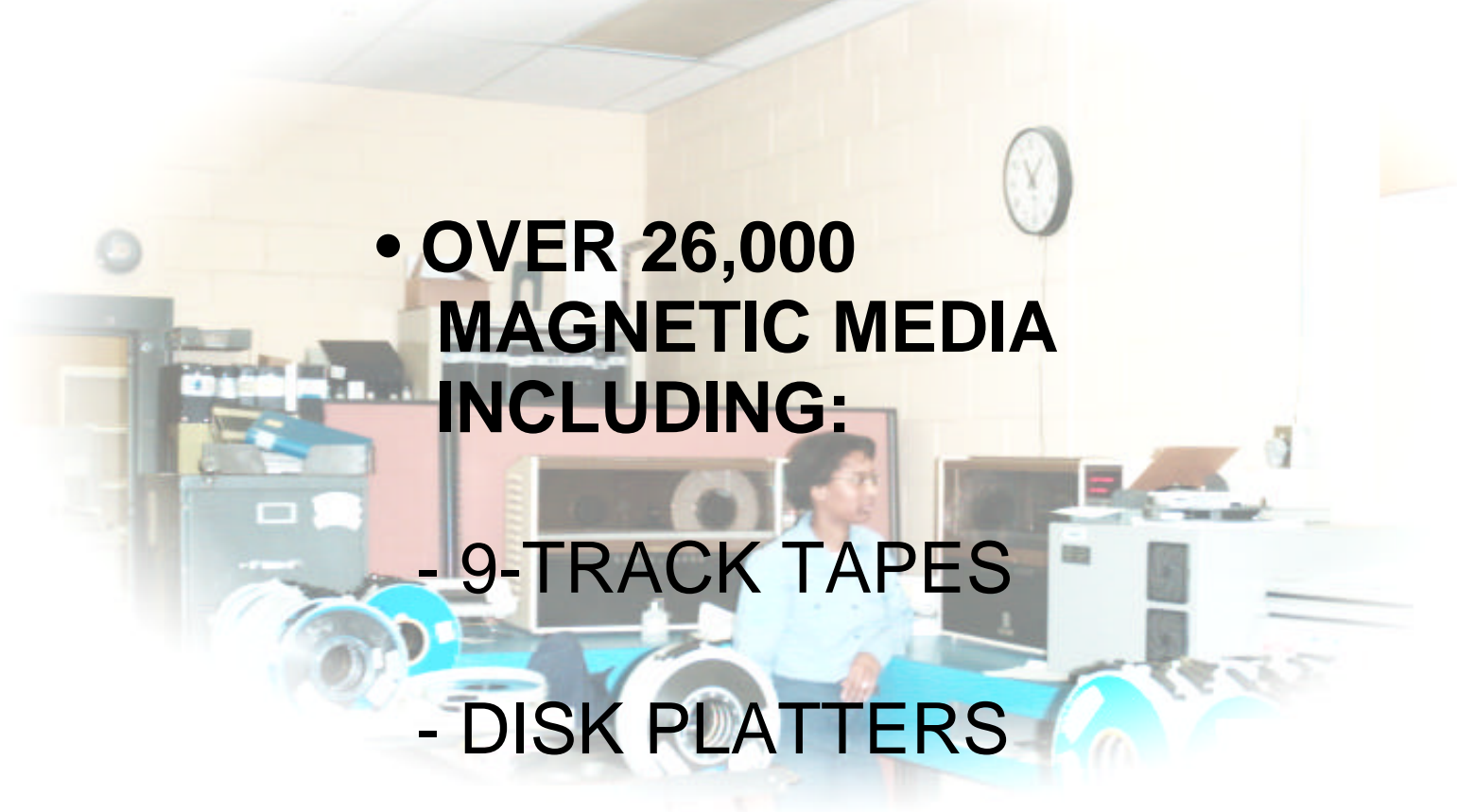
MAGNETIC MEDIA LIBRARY

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INCLUDING:**

- 9-TRACK TAPES

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AUTOMATED DOCUMENT PRODUCTION FACILITY

- **CREATE, EDIT, PUBLISH AND DISTRIBUTE TECHNICAL DOCUMENTS**
- **ELECTRONIC MEDIA CONVERSION**
 - **PROTOCOL - TO - PROTOCOL**
 - **PRINTER TEXT CONVERTED TO ASCII**
 - **SCANNED PRINTED TEXT CONVERTED TO ASCII**
- **GRAPHICS**
 - **COMPOSITION**
 - **SCANNING AND FORMAT CONVERSION**
 - **COLOR PRINTING ON SITE**
- **VIDEO TELECONFERENCING ON SITE**

NSWC PORT HUENEME DIVISION DAM NECK

“Engineering for the world’s sophisticated guidance syste



NSWC Dam Neck